

## **Competition, Information, and Development**

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April 1998

Paper prepared for the Annual World Bank Conference on Development Economics, Washington, D.C., April 20–21, 1998. The findings, interpretations, and conclusions expressed in this paper are entirely those of the author. They do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.



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## **Abstract**

Developing countries suffer from weak institutions: inefficient tax systems, lack of auditing expertise, poor education, corruption, inefficient financial systems, lack of credibility of governments, capture of politicians and bureaucrats. This paper asks whether and how each of these problems calls for a different view of competition, to what extent competition helps solve these problems, and to what extent it is implementable. Even though the pressure of competition is generally favorable, some care must be exerted in implementing it in the context of weak institutions. The need to support institutional improvements and to condition aid on such changes is great.

## Competition, Information, and Development

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One way to provide more effective incentives, including enhanced consumer orientation, is to extend the scope for competition.

— Joseph E. Stiglitz (1996)

Competition is unambiguously a good thing in the first-best world of economists. That world assumes large numbers of participants in all markets, no public goods, no externalities, no informational asymmetries, complete markets, no natural monopolies or, more generally, convexity of technologies in addition to full rationality of economic agents, a benevolent court system to enforce contracts, and a benevolent government with lump sum transfers to achieve any desirable redistribution.

Developing economies are of course very far from this ideal world, and the policy question “Should competition be encouraged in developing countries?” must be raised in a more realistic framework. Economic theory (in particular, industrial organization theory) has already given a myriad of examples where some form of competition may be detrimental in industrial countries. Let me mention a few. Patent policies that limit competition to create incentives for innovation are desirable to deal with the public-good nature of discoveries.<sup>1</sup> More generally, ex post restricted competition is often the only way to encourage investments in specific nonobservable assets in a relationship or an organization.<sup>2</sup> Natural monopolies require a small number of participants. Ex ante competition in the form of auctions may be organized but ex post

competition must be restricted to avoid a wasteful duplication of fixed costs. The probability of bank runs and catastrophic systemic effects viewed as increasing with competition in banking is a major theme in finance (see Caminal and Matutes 1997a, b; and Mishkin 1996). More generally, market competition for inputs or outputs affects the efficiency of firms and organizations, with ambiguous effects on the level of competition.<sup>3</sup>

The general philosophy behind these examples is that in the absence of one of the assumptions sufficient for establishing the fundamental welfare theorems, as second-best theory suggests, a restriction of competition may be beneficial. These examples must be evaluated with care. The potential restriction of competition can be taken seriously only if the impediment to the validity of one assumption is a major one that cannot be eliminated quickly enough. Otherwise, the solution is to remove this impediment and benefit from competition. The choice between the two options becomes a question of opportunity, which can lead to conflicting views according to subtle dynamic considerations. What do we mean by quickly enough? How difficult is the removal of the impediment? How irreversible will the limitation of competition be? Do we take a purely normative view or do we take into account political or administrative constraints? I have phrased the policy problem in terms of restricting competition. Even then, the implementation of such a policy is not obvious, as black markets can spring into existence. The implementation problem appears even more clearly when the desirable policy is to encourage competition. In the Arrow-Debreu model, competition is the result of the large number of participants, complete markets, and so on. How do we implement competition in the absence of these assumptions?

A simple case illustrates the methodology I will use in my analysis of developing countries. Consider the Buchanan example of a polluting industry. In the absence of an externality tax, a monopoly organization of the industry (which contracts output) may coincide

with the first-best production level and dominate a competitive industry that overproduces.

Should we recommend restricting competition in such a situation? Probably not. It seems more reasonable to recommend establishing an appropriate tax to internalize the externality and benefit from the dynamic virtues of competition. Should we maintain this position if the administration in charge of the environment is very poorly staffed or nonexistent or captured by the industry, or if the pollution is diffuse and cannot be measured at the individual level? A barrier to entry, such as a license to operate, may then be the only way to limit production and therefore pollution, at least if this policy is implementable and is not a new pretext for rent seeking. Clearly, the right policy answer should take into consideration many aspects of the problem that are not easily measured or even modeled. It is not surprising, then, that the right answers may differ according to the industry or the country, and, in particular, may differ between industrial and developing countries.

To study the problem of competition in developing countries, one approach is to examine the measures taken to encourage competition, that is, competition policy, and to see how conclusions should be modified for developing countries. This is the path followed by P. Rey (1997). I will take a different perspective. Considering the major structural problems of developing countries, I will ask whether and how each of these problems calls for a different view of competition, to what extent competition helps solve these problems, and to what extent it is implementable. In so doing I will take a broader perspective than what is usually meant by competition policy. The analysis of such a large question cannot, of course, be exhaustive. I will simply try to find examples that suggest policy prescriptions specific to developing countries. It is a difficult exercise, open to conflicting views, as I have explained above, but worth it. I will consider successively a number of problems that are universal but particularly acute in



developing countries: inefficient tax systems, lack of auditing expertise, low education and technological knowledge, corruption of institutions, inefficient financial systems, lack of credibility of governments, capture of politicians and bureaucrats. Drawing on the insights of modern industrial organization theory, I will ask whether more competition contributes to the solution of these structural problems.

### **Inefficiency of the Tax System**

Under the weight of fiscal imbalances, many developing countries find it increasingly difficult to invest in infrastructure and protect real spending on human resource and antipoverty programs. Nor are they able to control large-scale corruption, introduce organizational reforms within the public sector, and install effective regulatory mechanisms for the private sector.

— D. Mookherjee (1997)

The lack of efficiency of the tax system is best measured by the deadweight losses of taxes. These losses are tax specific, because taxes are not in general optimized and the level of corruption of tax authorities varies according to the various taxes.<sup>4</sup> The optimal tax basis depends on the information system available to the tax authorities. One should distinguish improvements in the tax system that are made possible by improving the auditing technology of tax inspectors, increasing the number of tax inspectors, and mitigating corruption, from tax reforms in the tradition of, say, Ahmad and Stern (1991), which use available information to eliminate historical (often politically motivated) anomalies of the tax system. Both types of reforms are difficult: the

first type because developing countries may lack the resources, in particular, human resources, for such improvements, which are bound to be slow anyway; and the second type when it meets political resistance by powerful interest groups.

The end result of these various structural effects is that, instead of a cost of public funds estimated between 0.3 and 0.5 in most industrial countries, several studies of the World Bank obtain amazing numbers (1.20 in Malaysia, 2.48 in the Philippines, between 1.19 and 1.54 in Thailand).<sup>5</sup> Of course, a major conclusion should be the absolute necessity to improve the tax systems. Meanwhile, such astronomical differences between industrial and developing countries must have strong implications in other areas of public policy.

For financing infrastructure, a common substitute for tax revenues is cross-subsidies. They have a bad reputation among some economists, particularly at the World Bank. Furthermore, we know that competition kills cross-subsidies through cream-skimming effects. I want to suggest a partial rehabilitation of cross-subsidies in developing countries that is not incompatible with some form of competition in the important question of infrastructure building. For example, as is well documented by Kerf and Smith (1996) for Africa, the access of the population to the basic public services—water, electricity, roads, telecommunications—is extremely poor, with an average access to safe water of 45 percent, to electricity of 30 percent, and an average density of telecommunications mainlines of 1 percent. And as they clearly state in their introduction: “The almost universal poor quality of the region’s infrastructure directly impacts on the living standards of its people and constrains private investment in other activities.”

Consider the problem of providing universal service of, say, telecommunications (it could be electricity, water, or transportation) in a country composed of a well-off city and a very

poor rural area. The European or U.S. approach to such a problem today would be to open the city to competition, define a level of service to be provided in the rural area, and organize an auction financed by a general tax or a tax on telecommunications in the city to determine the subsidies needed to convince an operator to become the universal service provider in the rural area. Even in the United States this policy can be very costly if it is not well financed. Hausman (1997) has computed the social deadweight loss associated with a specific subsidy to schools and libraries by long-distance services and obtains a large 0.86 cost of funds compared with a general estimate of around 0.3 in the United States. This high cost is due to a non-negligible elasticity of demand for long-distance services (0.7), the existence of other taxes on long-distance services, and a very high markup above marginal cost by the long-distance carriers. Hausman argues that a monthly subscriber charge would have a much lower social cost. Also, the reality of competition in the auction for universal service is not a foregone conclusion in view of the incumbent's advantages in rural areas. This is one reason why the Federal Communications Commission embarks on the costly construction of proxy models, so that it can impose (if credible) a reservation value for the subsidies and maintain competition in the market (ex post competition) as well as competition for the market (ex ante competition).

It is doubtful that such an approach is relevant for developing countries. The difficulties of the procedure are exacerbated in such countries. In view of the inefficiency of the tax system, it is likely that once competition is established in the city, driving prices down to average costs, the tax authorities will be unable to deliver the tax money needed for subsidizing operators in the rural area. Even if they did, it would be at a very high social cost (perhaps three times the level of the subsidy), because of the high cost of public funds and the lack of expertise to evaluate the cost of universal service, and also because the lack of competition in the auctions of universal

service would drive this cost even higher. In the end the development of the network in the rural area would just not happen, as is indeed the case in Africa.

A very different approach is worth considering.<sup>6</sup> First, the notion of universal service itself must be enlarged to include delivery of the service and not necessarily connection to a network. The best use must be made of alternative technologies (solar energy for electricity, mobile phone for telecommunications, wells for water) and the size of the appropriate network in the rural area must be carefully designed. The obvious alternative financing of the network expansion is by cross-subsidies, within a franchised operator's accounts, between the rich customers in the city and the poor ones in rural areas. Leaving the money within the operator avoids the inefficiency and corruption of the tax system, the more so if managers of the firm are sensitive to Hausman's arguments and are not prevented by regulators from using efficient pricing methods such as two-part tariffs. From a financing point of view, this clearly is a more efficient method. But, of course, such a method would not resist the liberalization of telecommunications in the city, since profits in the city would be skimmed off, leaving no money for financing the rural area.

The appropriate response is not to kill cross-subsidies by liberalizing telecommunications in the city, but to design several territories, each including a piece of the city and a piece of a rural area, and to offer them to competitive bidding with appropriate constraints on service quality and network expansion for the rural area.<sup>7</sup> In addition to benefitting from ex ante competition, this approach offers possibilities of ex post yardstick competition between areas, at least at the next bidding stage. If competition is insufficient, as it might be in many countries, these franchising contracts could be designed by the regulatory authorities. The danger then is the capture of the regulatory agencies, and the empirical question remains whether a relatively

sophisticated franchise can be better designed and monitored than the tax system. That is where international aid could focus its attention, by providing noncorruptible expertise to help design these regulations and ex ante competition rules. Such a policy may be cheaper and easier to implement quickly than a reform of the tax system.

An empirical way to explore the relevance of cross-subsidies in a modern regulatory framework is provided by Gasmi and others (1998). This paper uses their approach (developed in Gasmi and others 1997). An engineering model of the cost of local exchange telecommunications firms (LECOM) is extended to allow for informational asymmetries of the regulator and calibrated.<sup>8</sup> It allows for the comparison of different regulatory rules for an area composed of a central business district and a suburban area. A comparison can be performed between two cases: the optimal regulation of a monopoly that has a universal service obligation, and a case in which competition is introduced in the business district while the former monopoly still must satisfy the universal service obligation. In both cases transfers from the regulator are possible, but they entail a social cost of public funds. Competition in the business district limits the informational rent in that area but decreases revenues there. More public funds are then needed in the suburban area. It is shown that, as the cost of public funds increases, the first option improves and dominates beyond some value of this cost.

The conclusion is against a particular form of competition that kills the only available financing method, as long as the tax system is not substantially improved.

## **Lack of Expertise in Monitoring, Auditing, and Enforcement**

My impression is that many former command economies and developing countries face a particular deficiency whose importance is easy to underestimate. This pertains to the critical shortage of what might be called “the human capital of capitalism”—legal, managerial, economic, accounting, statistical etc. required to effectuate and operate a market economy and from a public sector perspective to regulate or otherwise address its dysfunctions and limitations effectively.

— M. Trebilcock (1996)

More emphasis on building financial infrastructure—accounting, auditing, and legal systems, and banking and supervisory skills—along with advisory work aimed at educating member countries to the need for incentive reform in banking are required.

— Gerard Caprio Jr. and Daniela Klingebiel (1996)

The lack of human expertise in monitoring and auditing and of resources devoted to these activities (see Gould and Amaro-Reyes 1983) is a pervasive phenomenon in developing countries. But it is usually underestimated, despite its dramatic implications in many areas of public policy. It is, of course, a major cause of the inefficiencies in the tax system discussed in the previous section.<sup>9</sup> And, as analyzed below, it fosters corruption. “One of the most powerful anti-corruption devices is the simple establishment of sound financial management practices including a timely and efficient accounting system combined with punctual, professional review

by internal and independent auditors” (Wesberry n.d.). It also has a direct implication for the type of regulation that can be implemented in monopolistic or oligopolistic sectors. Bad auditing of costs or simply poor information makes regulation particularly inefficient in developing countries. Indeed, bad auditing forces regulators to use high-powered incentive schemes such as fixed price contracts and therefore gives up large informational rents, which are particularly costly in view of the high cost of public funds and which encourage corruption. What, then, can we expect from a more competitive environment?

To explore this point in more detail, let’s consider a simple agency relationship, for example, Laffont and Tirole’s (1986) regulation model with cost observability. The regulated firm, or agent, has an unknown cost characteristic for realizing a project and furthermore, it can decrease cost by exerting effort. The regulatory authorities, or principal, are benevolent. The firm can be either efficient or inefficient, and this is its private knowledge. Optimal regulation entails a tradeoff between efficiency and rent extraction. The incentives for an inefficient type are reduced to decrease the informational rent of an efficient type. The higher the subjective probability that the firm is efficient, the more acceptable is distortion in the inefficient type’s incentives, because the higher is the expected cost of the rent.

How can we model the informational effect of competition in a simple way? Suppose that the information provided by the competitive environment is correlated with the type of firm facing the regulator. It is as if competition was providing a supervisory function in the agency model. Suppose that the supervisor discovers the type of the firm with some probability or otherwise nothing (as in Tirole 1986). When the firm's type is discovered, the regulator can offer a fixed price contract that extracts all the rent. The power of incentives is higher, and the probability of such a discovery is now higher. However, when the firm's type is not discovered,

the optimal response of the regulator to a better supervisory technology depends precisely on the modeling of that technology.

In some cases a better technology and low-powered incentives are *substitute* instruments to extract rents. Then an increase of competition increases incentives, the more so if the country has a high cost of public funds and a poor supervision technology. Competition has an even greater effect on incentives than in industrial countries and is even more desirable socially. In other cases a better technology and low-powered incentives are complementary instruments to extract rents, and the results are reversed. Finally, there is a general equilibrium effect that favors higher incentives, since, as information improves, the rents to give up decrease and consequently the cost of public funds decreases. Taking into account all effects, it can be shown that, in general, the expected power of incentives increases with this type of competition, and the more so in a developing country (see Boyer and Laffont 1998).

However, the informational effect of competition can be modeled differently. By allowing a principal to observe contracts in place in other similar agency relationships, competition provides a better evaluation of the distribution of costs he faces. This better statistical information will induce a more dispersed offer of contracts. The principal now has a stronger belief that he is either facing an efficient type or an inefficient type. For each signal the optimal tradeoff is driven by the shape of the distribution of beliefs, and there is no simple result when the information structure becomes finer. However, Laffont and Tirole (1993) show that if a finer information structure corresponds to a partition of the support of beliefs in subintervals, then expected incentives increase. Also, for the two-types case and small uncertainty, expected incentives are constant (as long as both types are kept) and increase when a shutdown of the



inefficient type occurs. Furthermore, the general equilibrium effect always favors higher incentives.

Despite a number of ambiguities, we can conclude that in general the informational effect of competition (which is here obviously favorable from a welfare point of view) will induce higher-powered incentive schemes, and the more so the less developed the country.<sup>10</sup>

The analysis remains opaque because it did not explicitly model how increased competition improves the principal's information. So, let's consider the more obvious case of increased product competition: A competitive sector produces a good that is a demand substitute for the monopoly's good. If the two goods are strategic substitutes, then increased competition in the form of a lower marginal cost for the competitive sector decreases production and therefore incentives in the monopolistic sector, with the opposite results when the goods are strategic complements (see Boyer and Laffont 1998). Results on the impact of greater external competition on incentives within organizations are mixed. More competition may be good, as in the examples above, without creating greater incentives.

So far we have considered the impact of external competitive pressures. We can also introduce competition within the public sector or the administration. Increasing competition, either ex ante competition in the form of auctions or ex post competition with some duplication of fixed costs, is even more profitable in developing countries than in industrial countries where expertise enables the regulator to directly reduce the extent of asymmetric information and where auditing of costs makes possible the use of lower-powered incentive schemes that decrease costly informational rents (see Laffont and Tirole 1993; Auriol and Laffont 1993; Dana and Spier 1994; and Anton and Yao 1987, 1989, 1992). Consider a procurement auction where firms differ in efficiency and can also affect their cost by effort—the setting of Laffont and Tirole (1993). We

can compute for the optimal auction the gain of having an auction. Take two situations in which the winner must bid against other bidders or be regulated as a monopoly. The gain in transfer from the auction increases with the size of the informational asymmetry. A poor auditing mechanism leaves this asymmetry large. So the gain is double in developing countries because competition decreases the very costly transfers, which have to be high because of large asymmetries of information. On the other hand, the cost of generating competitors is likely to be higher in developing countries because of lack of expertise and various other reasons that are discussed below (corruption, lack of commitment, and so forth). Competition is even more desirable than elsewhere but is more costly to implement.

Another area of concern from the point of view of this section is traditional competition policy. After reviewing the theoretical and empirical literature about the impact of competition on growth in industrial countries, Rey (1997) analyzes traditional competition policy from the viewpoint of developing countries. His main conclusions are as follows. Factors that facilitate collusion are entry barriers, market concentration, and existence of capacity constraints, and they are likely to be more important in developing countries.<sup>11</sup> Drawing on the theory of collusion under asymmetric information (see Faure-Grimaud, Laffont, and Martimort 1998), we can add that transaction costs of collusion may be lower in developing countries, possibly because of an implicit lower risk aversion for economic agents who have little to lose<sup>12</sup> and certainly because of less efficient monitoring technologies.<sup>13</sup> Similarly, because credit markets do not perform well, predatory strategies may be particularly dangerous in developing countries. Rey (1997) argues that the high entry barriers often found in developing countries give more force to the market foreclosure argument when discussing the essential facility doctrine. He also advises a more cautious attitude toward vertical restraints.

Although even more desirable in developing countries, the U.S.-type competition policy with its armada of lawyers and economists is not affordable or even implementable.<sup>14</sup> The design of a body of simple and transparent rules for developing countries, in particular for horizontal collusion and abuse of dominant position, remains, I believe, a worthy task. The optimization of the use of scarce human and material resources for regulatory purposes is also crucial. Furthermore, a competition agency will be valuable for its educational role in advocating the social benefits of fair competition.

Nevertheless, given the complexities and ambiguities in the economic analysis of predation and vertical restraints, the fact that emerging industries will necessarily be highly monopolistic, and the concomitant lack of expertise and information and, consequently, the great discretion and potential interference of interest groups, the benefits that can be expected from competition policy in developing countries will be quite small for some time to come.<sup>15</sup>

Beyond institutional weaknesses, competition is weak in developing countries because transactions are localized as a result of weak communication systems and inefficient trading organizations. Focusing attention on these sectors should be particularly useful, but these problems call even more for investments in infrastructure than for a better competition policy.

### **Low Education and Technological Knowledge**

Less-developed nations must develop, which in the absence of rich physical resource endowments, means absorbing modern technology.

— F. Scherer (1997)

The most compelling argument in favor of temporary protection is that development requires modern technology, which must be acquired and cultivated, and that learning by doing must occur. Examples abound in past and recent history of successful industrial policies, particularly in East Asia. For such policies to succeed, governments must be able to identify strategically important industries and some firms that can act as “national champions” once the learning-by-doing phase has been carried out under appropriate funding and protection. If the country is large enough, this phase itself can be quite competitive between national firms.

The fact that no systematic positive relationship has been found between firm size and profit, export activity, or research and development (Khemani 1997) will not easily convince developing countries that such strategies are bound to fail.<sup>16</sup> Nor will the fact that there are as many examples of failed industrial policy as successful, and probably more. The question then becomes a tradeoff between, on the one hand, the ability or inability of governments to pick the right industries and right winners when economies of scale do not allow internal competition, and, on the other hand, a form of external competition that may not put into motion transfers of technology and learning by doing.

It may be the case that in many developing countries where technical, management, and government expertise is lacking, only foreign investment can help development, because it brings both new technologies and the credibility needed to borrow on international capital markets. Such investments should be welcome if they help build local capacity. But when international cartels engage in anticompetitive practices, foreign investment can be detrimental to economic development in developing countries.<sup>17</sup> Concerning this last point, it is clearly desirable to make progress in global competition policy to discipline the international cartels.

I find it difficult to come to a clear conclusion about the desirability of some form of industrial policy in developing countries. A smart industrial policy with restrictions on competition that favor learning in a few infant industries is probably a good step toward development. But such a policy is unlikely to emerge from the captured and poorly staffed governments of developing countries.<sup>18</sup> Perhaps the implementation of competition policy in developing countries would be easier if it were combined with expert advice about the restricted forms of industrial policies that could be designed to shape an attractive future.

## **Corruption**

In general, any reform that increases the competitiveness of the economy helps reduce corrupt incentives.

— Susan Rose-Ackerman (1996)

Despite this optimistic statement, in a world of foreign aid,<sup>19</sup> lower controls, fewer entry barriers, and deregulation and privatization, Langseth and Bryane (1998) note that “the survey confirmed a trend demonstrated in a number of other surveys in Africa about corruption, namely, that corruption has increased in the past five years and is still increasing.”<sup>20</sup> It is worth reviewing what economics has to say about the relationship between corruption and competition. With enough money and political determination it is always possible to eradicate corruption. It does not mean that it is worth it, and in fact all societies accept some level of corruption because it would be too costly to eliminate it completely. If we assume a benevolent government, we must presume that it chooses an optimal policy to deter corruption. We can then ask what the effect of

competition is on the level of “optimal” corruption. We must also presume that the government chooses an optimal competition policy, which together with the underlying technological, informational, and behavioral characteristics of the economy generates some levels of competitive pressure. In other words, competition is endogenous and the relevant question becomes, How will changes in the procompetition characteristics of the economy affect the actual levels of competition and corruption? Changes such as the informational effect of a more competitive environment, the greater substitutability of competitors’ goods, or the lower costs of these competitors can be viewed as exogenous competitive pressures whose impact must be studied.

Alternatively, we can assume that the government maximizes the objectives of certain interest groups, which might entail, for example, competition policy that is too lax (compared with a socially optimal one) or tariffs that are too high. Then we can ask, in addition to the former questions, how would a change in these “wrong” policies affect competition and corruption? However, the exercises are then normative and beg the question of their implementability. A political economy approach, for economists convinced of some welfare-improving economic measures, is then to propose a path toward the reform that attracts the interest of those in charge of the government. Institutions like the World Bank that have the means for direct intervention can condition their loans or aid on particular institutional reforms to obtain a political consensus.

Surprisingly, the literature on the relationship between competition and corruption is very limited. Rose-Ackerman started the analysis of the effect on corruption of internal competition within the bureaucracy in her 1978 book. She concluded that a small number of honest bureaucrats can be very effective by allowing applicants to reapply for the service delivered by

bureaucrats if they are asked for bribes. More generally, Rose-Ackerman argues, “the role of competitive pressures in preventing corruption may be an important aspect of a strategy to deter bribery of low-level officials, but requires a broad-based exploration of the impact of both organizational and market structure on the incentives for corruption facing both bureaucrats and their clients” (1997).

Shleifer and Vishny (1993) consider a situation in which government officials have discretion over the provision of some goods, say, permits, and can collect bribes from private agents. However, they have no model of why this discretion came about. As they say “we take the principal-agent problem as given.” Consequently, their analysis is preliminary because they cannot take into account how alternative structures of government affect the principal-agent problem and the regulatory response of the top level of government. They treat the set of officials providing complementary permits as sellers of complementary goods who ignore the externalities they create for one another. This leads to larger bribes but smaller corruption revenues. Even though the market structure approach is part of the problem, by ignoring the foundations of the principal-agent problem, they cannot enter the specificities of corruption that are deeply connected with the informational gaps of the principal and the nature of side contracting between agents. The “market structure” of government officials influences the allocation of information relating to the agent but also the side contracts being written.

Laffont and Martimort (1997) show that the inefficiency of bribe extractions by multiple bureaucrats can be exploited by the principal of the bureaucracy to construct less costly collusion-proof mechanisms. The principal can use traditional yardstick competition between bureaucrats by exploiting the correlation of their information. The authors also show that information itself introduces increasing returns from side contracts, and makes desirable the

separation of bureaucrats, each endowed with his own information technology, even when their information signals are uncorrelated.

Ades and Di Tella (1994) find empirical evidence that exogenous increases in product market competition reduce corruption in the bureaucracy. They recognize the ambiguous effect of competition in theory. Less competition means that there are more rents to be protected by corruption, but there is also a greater incentive for a regulatory response. Empirically, their most robust result is that competition, measured by the share of imports in gross domestic product (GDP), significantly decreases corruption. Better schooling, antitrust laws, and a higher per capita growth rate also reduce corruption but not always significantly.

A similar regression based on African data confirms the strong positive effect of competition:<sup>21</sup>

$$C_{95} = -0.10 + 0.73 C_{90} + 4.18 \frac{\text{IMPORTS}}{\text{GDP}} - 0.009 \text{ AID} + 0.10 \text{ GROWTH RATE}$$

(-0.24) (6.38) (3.44)
(-2.54)
(2.26)

Adjusted  $R^2$  : 0.61                      26 observations

Corruption is decreased by greater openness of the economy (measured by the share of imports in GDP) and a higher per capita growth rate, and increased by aid.

Bliss and Di Tella (1997) ask the question, Does competition kill corruption? Their model is more a model of gangster activity than of corruption. Corrupt officials demand money from firms, which either pay or quit. Hence corruption affects the number of firms in a free-entry equilibrium. The authors argue that “competition is not necessarily an exogenous parameter” and that corruption itself affects the extent of competition. They distinguish deep competition parameters—such as transport costs, uncertainty of cost distribution, overhead cost—that they



vary exogenously from the measure of competition, which is an outcome of the economic system just as the level of corruption is. Their results on the level of corruption and on welfare are quite ambiguous and depend heavily on the structure of uncertainty about costs that the corrupt officials face. As the authors recognize, they take as given the power enjoyed by corrupt agents and focus on the process of demanding bribes. There is no theory as to why and how this power came about. This is the main weakness of this interesting paper, resulting from the feature well recognized by the authors that they “are not modeling agency relationships.”

Collusion can be modeled in the way advocated by Rose-Ackerman, that is, as the problem arising when a principal uses intermediaries as supervisors or monitors in an agency relationship (see Laffont and N’Guessan 1998). Using the Tirole hierarchical model with hard information, consider a principal regulating a firm. There are two types of supervisors, corruptible and less corruptible ones. Depending on the parameter values of the model, it may or may not be better for the principal to allow corruption to happen. Particularly in developing countries where the cost of funds is very high, it is (more) often not worth paying high salaries to intermediaries to avoid corruption. Consider now an increase of competitiveness of the yardstick type. Results again depend on the complementarity or substitutability of low-powered incentive schemes and better supervision. Suppose they are complementary. Increasing competition decreases incentives. In cases in which corruption of the most corruptible supervisors is allowed, lower incentives are called for because more rents are given up. When low incentives and competition are complementary, competition is more effective in the case with corruption and therefore increases the probability that letting corruption happen is good policy. The opposite results obtain in the case of substitutability.

A similar logic applies to the case of greater product market competition imposed on a monopolist. Again, when corruption is accepted, lower-powered incentives are desirable because the principal has a greater likelihood of facing an efficient type and he wishes to decrease rents even more. Lower costs of competitors bring higher production of competitors. If the goods of the monopolist and competitors are demand substitutes and strategic substitutes, this implies less production for the monopolist. But less competition makes effort less effective and calls for lower incentives.

Corruption may be particularly harmful when it is asymmetric. When a bureaucrat delivers a scarce resource, widespread corruption can still lead to the allocation of goods to those who value it the most. Efficiency is preserved at the cost of loss of resources for the government. If the wages of the bureaucrat are reduced appropriately, the damage may be limited (Besley and McLaren 1993). Redistributive programs are of course much more difficult to implement. However, if only a proportion of agents are willing to pay bribes, it is clear that corruption entails a favoritism that can be very costly because it induces an inefficient allocation of resources. An inefficient contractor may be selected simply because he is willing to pay bribes. Laffont and Tirole (1993: ch. 11) show how to fight corruption in this situation. It requires either eliminating any discretion in the procurement rules—for example, by imposing the choice of the lowest offer without any consideration of the nonverifiable dimensions about which the bureaucrat might have information, such as the quality of the project or the financial viability of the applicant—or paying very high rewards to the bureaucrat to induce proper behavior. Another case is when one type of firm engages in corruption to evade taxation while others do not. Competition is then biased.<sup>22</sup> Corruption here creates unfair and inefficient competition, starting a vicious circle

through the higher cost of public funds it entails, because less money is then available to pay for incentive schemes against corruption within the administration.

Corruption is particularly crucial for growth: 40 percent of the variance in growth rates in Africa between 1990 and 1996 can be explained by corruption. The effects of competition on corruption are somewhat ambiguous, but to the extent that competition will bring growth, it will provide the instruments needed to fight corruption. However, corrupt governments may want to weaken competition (see the section below on governments with private agendas).

### **Inefficient Credit Markets**

The damage that these (financial) crises impose seems to be far greater for developing countries than for industrial countries.

— Frederic S. Mishkin (1996)

Following Mishkin, I note that it is well understood that a crucial impediment to the efficient functioning of the financial system is asymmetric information of the adverse selection or moral hazard type. Banks are particularly important in developing countries, where information about private firms is harder to collect and, consequently, securities markets play a very small role in financing the economy. However, depositors who lack information about the quality of the loans made by banks need protection to avoid bank panics when shocks occur. A government safety net in the form of deposit insurance or less formal government protection weakens the incentives to monitor banks and exacerbates excessive risk taking by bank managers. Since most depositors are unable to monitor banks, government regulation is needed to promote risk diversification,

impose capital requirements tied to the amount of risk, control management to prevent fraud, and ensure broad disclosure of information. Such regulation is obviously complex and may be hampered by insufficient resources and knowledge or by regulatory capture.

A financial crisis is a nonlinear disruption to financial markets in which adverse selection and moral hazard become much worse, so that financial markets are unable to efficiently channel funds to those who have the most productive investment opportunities (see Mishkin 1996). In addition to the shocks that promote financial crises in industrial countries (increases in interest rates, increases in uncertainty, stock market crashes, and so forth), developing countries face such shocks as unanticipated depreciation of the local currency (because debt is often denominated in foreign currency) or terms-of-trade shocks in primary goods for countries with little export diversification. A prompt response by regulators involving monetary expansion or greater availability of loans may prevent these shocks from degenerating into financial crises. However, Mishkin (1996) argues that, because debt contracts are generally of very short duration (due to a bad record on inflation or poor enforcement of creditor rights) and because of a lack of credible commitment to low inflation, these brief expansionary policies only fuel inflation and currency depreciation. Speedy recoveries are not possible without foreign assistance. Consequently, it is more important in developing countries to have a strong bank regulatory and supervisory system. This requires “providing sufficient resources to bank supervisors, providing adequate accounting and disclosure requirements, encouraging bank supervisors to take prompt corrective action, and insulating bank supervision from the political process” (Mishkin 1996: 42). Moreover, “Although deregulation and liberalization are desirable objectives, the asymmetric information framework in this paper indicates that if the process is not managed properly, it can be disastrous.

If the proper bank regulatory and supervisory structure is not in place before liberalization, risk taking behavior will not be adequately constrained” (Mishkin 1996: 41).

Mishkin reaches the same conclusion as I did above when considering the liberalization of natural monopolies: it is important to set up an appropriate regulatory framework before liberalizing (Laffont 1996). But this task is difficult, if not impossible, in developing countries that lack adequate human resources, auditing technologies, and political institutions. The inescapable implication is that “developing countries may need to take the financial liberalization process slowly in order to keep a lending boom from getting out of hand” (Mishkin 1996: 42). I will add, again, that the most effective aid that can be provided is to help design those regulatory institutions and that advocating liberalization without providing such aid is irresponsible.

The complementarity of general competition policy and good banking sector regulation is worth noting. When the banking sector is inefficient and makes borrowing very costly or impossible, an effective competition policy may destroy the rents that allow firms to invest. It also increases the probability of bankruptcy and calls for efficient bankruptcy rules.

In addition to the concern with financial crises, the question of financial innovations adapted to developing countries is crucial. Some hope lies in the development of collective borrowing, such as the Grameen Bank. So far competition among classical banking institutions has done little to increase lending to the poor.

## **Lack of Commitment**

Low credibility of rules is associated with lower rates of investment and growth.

— A. Brunetti and others (1997)

The lack of credibility associated with weak governments is a major problem for developing countries. This relates to all areas of economic activity: agents cannot write long-term contracts because there is no efficient court system, and they do not find it worth investing because they fear that their gains will be stolen or expropriated, either in their market activities or in their contractual relationships with the government. This lack of protection for agents who are no longer residual claimants for the results of their efforts induces the well-known Williamson underinvestment effect, particularly in noncontractible investments.

Consider, for example, a framework of repeated auctions for the management of a public utility. The winner of today's auction will restrict his nonverifiable investments because he knows that with some probability he will not win the next auction and will lose his investment, which cannot be compensated for (because it is nonverifiable). The tougher the competition is tomorrow, the greater the underinvestment.<sup>23</sup> When the government is strong, it can commit to bias the auction in favor of the incumbent to mitigate the underinvestment effect (see Laffont and Tirole 1993: ch. 8). However, a weak government will not be able to commit credibly to a biased auction. Weakening competition today may be the only way to credibly weaken competition tomorrow.

Let's simplify this above setting to the case of a single firm regulated by an agency. The lack of commitment also introduces the important ratchet effect (see Laffont and Tirole 1993: ch.

9, 10). Specifically, when the regulated firm's information is correlated over time and the agency can commit only in the short run, the firm underperforms in the first period to hide its efficiency, because the regulator would make use of the information learned in the first period to eliminate any prospect of rent in the future. Olsen and Torsvik (1993), with linear contracts, and Martimort (1998), with nonlinear contracts, have shown that having multiple regulators—a type of competition—can be a way to commit to less rent extraction in the future and therefore to more revelation of information in the first period. The optimal design of institutions in developing countries calls for less competition in one case and more competition in the other to partially overcome the problem created by the lack of commitment.

But the lack of commitment power may itself make it difficult to implement competition. This is of course the case if the threats of competition policy are not credible because judges can be corrupted or because the expertise to prove noncompetitive behavior is lacking.

It is difficult to attract foreign competition and foreign capital if the government does not have the required credibility to protect the investments. After all, this is the reason that in the past many developing countries developed public firms, because they could not attract private investment. Institutions such as the World Bank and the International Monetary Fund have played a useful role in enhancing the credibility of governments to protect foreign investment (if only by the fear of large penalties) and have contributed in this way to greater competition.

Another example shows how the lack of credibility undermines the institutions required for competition. Consider an auction of contracts for public projects. It fulfills its objective of decreasing the cost of the public projects if competition is effective. However, collusion is a potential problem, and I have already argued that the transactions costs of collusion are lower in developing countries. A way for the government to fight collusion is to use a low reservation

cost. But this instrument is effective only if it is credible, that is, if the government can credibly cancel the project if no offer is below the reservation cost.

The lack of commitment power may call for either more or less competition. In all cases implementing competition requires commitment power and therefore is more difficult in developing countries.

### **Governments with Private Agendas**

It is well accepted today that governments of many developing countries are either captured by powerful interest groups—local elites or foreign capital—or are better described as predatory than protective. I believe that a consensus is emerging about the idea that little can be done to reform institutions without local political support. It is particularly clear for competition policy. It is rather easy for authorities to extract bribes and favors when they control barriers to entry.

Under the pretext of regulation, an oligopolistic structure is maintained, producing rents that can be shared by the politicians in power.<sup>24</sup> Implementing effective competition policies is the best way for those politicians to destroy the source of their rents. No illusion should be entertained about the apparent multiplication of competition laws in developing countries when a strong political commitment is lacking (see Khemani and Dutz 1995). It is much too easy to prevent effective competition by nontariff barriers for such laws to be taken as credible commitments. Poorly designed and applied laws can even act as barriers to trade and foreign investment.

It is difficult to see how institutions such as the World Bank can promote competition when there is political resistance without letting (nonexistent) international competition authorities intervene directly within the countries. There are too many nonverifiable instruments



in the hands of authorities to monitor the policies. To be effective, only penalties based on performance seem possible: provide funds only to countries that have good results on the competition front.

The implementation of these competition policies requires compensating the decisionmakers who enjoy benefits from the rents generated by the lack of competition. Favors associated with investment projects that take place only if objective measures of competitiveness have improved might work, at least if corruption is centralized enough. It is of course difficult to openly advocate such policies.

What is happening with privatization bears some similarity to such a deal. It is by now well known that for the rulers of the country and their political supporters, privatization often means the loss of numerous private benefits that are socially costly. For privatization to happen alternative benefits are needed in the form of shares at discounted prices, direct kickbacks, or World Bank loans that provide indirect benefits. A satisfactory quid pro quo can be engineered because the privatization decision is easily verifiable.<sup>25</sup> It seems more difficult but not impossible to enforce competition in similar ways.<sup>26</sup>

The difficulties encountered in the implementation of competition policy have implications for the optimal sequencing of reforms. Privatization and formal liberalization are likely to lead to private monopolies, which will generate resources for interest groups apt to resist further development of authentic competition. Efforts to impose these reforms before a credible set of institutions—regulation, competition policy, financial regulation—has been designed will yield disappointing results. It seems easier to use privatization as an opportunity to compensate the decisionmakers and other powerful political interest groups (for example, with shares) for the setting up of competitive conditions and good regulatory institutions. However, this latter step

requires human and financial resources, hence the need to emphasize education and international aid in this area.

## **Conclusion**

In this paper I have considered some of the main institutional obstacles to development, in addition to poor endowments of human and physical capital, and have questioned the policy of liberalization often advocated for developing countries. Several insights emerged from the analysis:

First, cross-subsidies should not be “demonized” because they can play a useful role in network industries when the tax system is failing.

Second, the lack of institutional resources in auditing, monitoring, and enforcement makes competition a particularly valuable substitute instrument for rent extraction in developing countries, but it is also more difficult to implement there. More competition does not necessarily create greater incentives within the regulated sectors.

Third, competition may in the short run increase corruption because it can raise the stakes of collusion. But in the long run it should provide the resources for limiting it.

Fourth, regulation is in some sectors a complementary instrument for increased competitiveness, in particular for the financial sector, and liberalization can proceed safely only to the extent that strong regulatory institutions are established.

Fifth, a lack of credibility makes the emergence of a competitive environment difficult and may exacerbate instances of excessive competition.

Sixth, the nonbenevolence of governments makes competition difficult to implement, because it often destroys the rents they are reaping. In such cases, the implementation of competition requires quid pro quos benefiting the decisionmakers.

A recurrent observation I have made is that effective competition requires institutions that are often very complex and therefore very costly to set up in countries lacking financial and human resources, auditing expertise, and the reputation for commitment. Competition is not easily implemented, and furthermore captured governments may not wish to implement it. I suggested that little can be expected in countries where the political willingness is lacking and that in others international aid for institution building is essential to exit vicious circles of underdevelopment.

Figure 1 summarizes some of these vicious circles. I have documented the thin arrows in the text. The thick arrows indicate what I believe are the most promising ways to destroy the vicious circles.

My general conclusion is, of course, that stimulating competition is essential for development, but also that democratic institutions that promote the welfare of consumers are needed to avoid interference by interest groups in the implementation of competition. Because competition is not an automatic outcome of deregulation, it is important to understand that simply conditioning loans on the existence of competition laws will not ensure the creation of proper institutions for effective competition. Only a strong state can implement competition, so to the message of the importance of a smaller state should be added the message of the importance of a better and stronger state. A strong state and competition are complementary in many crucial economic sectors. Aid and conditionality should focus on those fundamentals favoring both.

**Figure 1 Vicious Circles of Underdevelopment**



## Notes

The author is indebted to J. P. Azam, A. Estache, and P. Rey for several discussions on the topic of this paper, and to T. Besley, D. Martimort, P. Seabright, J. Tirole, and two anonymous readers for comments on a previous draft.

1. Hence ambiguous results as to the impact of competition on innovation and economic development (see Aghion and Howitt 1997 for an overview of the relevant literature on endogenous growth).

2. The Williamson effect.

3. See Willig (1987), Martin (1993), Horn and others (1994), Hart (1993), Sharfstein (1986), Hermalin (1992), (1994), and Schmidt (1997). A weakness of this literature is that it takes the number of firms expressing the level of competition as exogenous.

4. See Banerjee (1996) for an account of the empirical evidence that corruption has a first-order effect on government revenue.

5. See Jones, Tandon, and Vogelsang (1990) for a synthesis.

6. See Laffont and N'Gbo (1998) for more details.

7. In Argentina, for water and sewerage the tariff structure allows the licensee to balance its economic equation through certain groups of users (see Chisari and Estache 1997).

8. LECOM is due to D. Gabel and M. Kennet.

9. See also Mookherjee (1997). Note that inefficient tax systems due to lack of resources for auditing and monitoring may be a deliberate choice of governments. For example, in China the inefficiencies due to the decentralization of the tax system were accepted out of fear that a recentralization of public resources would increase the power of those opposing reforms. Providing international aid for improving the efficiency of control would then be pointless because such improvement would not be implemented.

10. If we model increased competition as an increase in competition for talent, we also obtain an increase in incentives and the more so for developing countries.

11. For recent work on these issues see Bernheim and Whinston (1990) and Compte, Jenny, and Rey (1997).

12. This point is probably debatable.

13. In particular the proximity between firms and regulators reduces uncertainty in side contracting.

14. It is not surprising that different schools of economic thought have strongly conflicting views on the relevance and the content of competition policy in developing countries (see Khemani and Dutz 1995). I am thinking about very poor countries, not already quite industrialized countries such as Argentina, Brazil, and Mexico.
15. Again, I am thinking about very poor countries, not already quite industrialized countries.
16. It should be remembered that “before World War II, most nations treated monopolies and cartels, domestic and international, with benign neglect, or, e.g., in Germany and Japan, actively encouraged them” (Scherer 1996). United Nations Conference on Trade and Development (1997) acknowledges: “Empirical evidence relating to the effects of industrial policy on competition and efficiency is mixed.”
17. See Jenny (1997) for examples.
18. Ades and Di Tella (1997) show empirically that a substantial part of the benefits of industrial policies is lost when the interaction with corruption is considered.
19. It is often argued that tied aid restricts competition, fostering collusion among bidders and corruption.
20. Analysis based on the Business International index for 30 countries of Africa shows that corruption increased very slightly from 1990 to 1995 because of Somalia. It is stationary for 26 countries.
21. The higher is  $C$ , the lower is corruption. The estimation is by the generalized method of moments with standard errors White-corrected for heteroskedasticity. The overidentifying restrictions are accepted.
22. From this point of view the large movement to eradicate bribing in U.S. and European companies active in developing countries may create inefficiencies in the short run.
23. Aghion, Dewatripont, and Rey (1995, 1997) developed the interesting idea that the main merit of competition may be to induce firms to adopt a behavior that is closer to profit maximization, which unambiguously induces those firms to innovate more, which here means to invest more.
24. Rowat (1995) notes that “the political economy of reform needs to be examined carefully since vested interests that enjoyed the highly protectionist environments of the past are usually averse to succumbing to a new competitive regime.... Competition authorities need to make a special effort to ‘educate’ the public about the merits of a sensible competition policy.”
25. See Laffont and Meleu (1997) for a positive theory of privatization along these lines.
26. Note however that privatized firms often make enormous profits, which can be interpreted as the result of efficiency gains or of lax regulation.



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